Syllabus for Astro 122: ASTRONOMY OF STARS&GALAXIES

Winter 2013

Instructor: Professor Natalia Ivanova

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Office and office hours: CCIS 2-107. 2-3:50pm, Tuesdays in Jan-Mar and Thursdays in Apr.
There will be no office hours on Jan 15; some other office hours might be canceled.
Course room and time: **CCIS L2-200, MWF 3:00-3:50 PM**.
Tutor for "problem solving" labs: **Arash Bahramian**, email: bahramia@ualberta.ca
Tutorial room and time: **CCIS L2-200, Monday & Thursday 4:00-5:50 PM**.
First tutorial on Jan 14th. Tutorials are optional, and designed to help to those students who are having problems with course material.
Course webpage: https://eclass.srv.ualberta.ca/my/
Look for ASTRO 122 ASTRONOMY OF STARS & GALAXIES under My Courses.

Lectures slides will be posted after a lecture has been given; no other notes will be posted.

Course Description:

This course will provide an overview of the current understanding of stars, galaxies and cosmology. The emphasis will be on understanding the physical processes underlying astronomical phenomena.

Required Course Textbook:

"The Cosmic Perspective" *with Mastering Astronomy* (Sixth Edition)
OR
"The Cosmic Perspective: Stars, Galaxies & Cosmology" *with MasteringAstronomy* (Sixth Edition)
by Bennett, Donahue, Schneider, & Voit

If either of the above books did not come with a Mastering Astronomy Student Access Kit, purchase a kit (available at either http://www.masteringastronomy.com) or the University Bookstore.
Instructions for registering at www.masterinastornomy.com are on e-Class. Very important: use your CCID for registration, NOT your student ID.

Required Course equipment:

i>clicker remote is required.

Course Prerequisites:

Pure Mathematics 30 or Mathematics 30-1 and Physics 30.
Students must have either all prerequisites or a signed waiver from the instructor to get credit for the course.
A waiver on PHYS 30 requirement will be given **only** if either

- a student had taken PHYS 20; or
- a student has passed with a non-failure grade ASTRO 120 or another first year physics course;

All students, but especially those who obtained waiver due to physics pre-requisite, are strongly advised to work through the provided on-line tutorials on physics fundamental; going through the tutorial on math basics is advisable as well.

Topics Covered: (tentative)

1. Our place in the Universe (Chapter 1)
2. The Science of Astronomy (Chapter 3 in brief)
3. Physics fundamentals (Chapters 4&5 in brief)
4. Telescopes (Chapter 6)
5. Our Star (Chapter 14)
6. Surveying the stars (Chapter 15)
7. Star birth (Chapter 16)
8. Star stuff (Chapter 17)
9. The bizarre stellar graveyard (Chapter 18)
10. Our Galaxy (Chapter 19)
11. Galaxies and foundation of modern cosmology (Chapter 20)
12. Galaxy Evolution (Chapter 21)
13. Dark matter, dark energy and the fate of the Universe (Chapter 22)
14. The beginning of time (Chapter 23)
15. Life in the Universe (Chapter 24)

Grading:

Standard Assignments:	25%	approximately every week
Reading Assignments:	3%	Over entire term
In-class response:	2%	Over entire term
Midterm test 1:	17.5%	Feb 8, (CCIS L2-200)
Midterm test 2:	17.5%	Mar 8, (CCIS L2-200)
Final exam:	35%	Apr 22, 14:00 (Location TBD)

You will be able to view your grades on eClass.
Grades are assigned by taking the score for each course component and calculating a total course percentage score using the component weights given in the course syllabus. This overall mark is then used to assign course grades, where the expected class grade average is 2.6 (this is between C+ and B-). Grade boundaries will be decided based on a combination of historical student performances and the instructor's expectations and judgment. Where possible natural grade boundaries will be used. The absolute percentage scores to secure a particular grade will vary from year to year because it is not possible to write exams with consistently identical difficulty levels.

Standard Assignments:

1. Standard Assignments will be assigned approximately once a week.
2. Assignments are online at `http://www.masteringastronomy.com`.
3. Late assignments can **not** and will **not** be accepted: deadlines are strictly enforced by the web-site and individual extensions will not be possible.
4. To mitigate this strong enforcement in the case of illness, family emergencies, etc., each students' homework with the lowest percentage mark will be dropped when calculating the contribution to the final grade. For more serious, longer term problems, contact the instructor as soon as is possible.
5. While it is expected that students will discuss the homework with each other, it should be remembered that outright copying is plagiarism (an offense which could lead to expulsion from the university).
6. Students are responsible for keeping up with the posted on eClass and on www.masteringastronomy.com deadlines.

Tentatively, 11 homeworks will be given, where only 10 best will contribute into the final grade; each homework will have the same weight despite of the number of points that each homework has.
On-line tutorials. There are four different kinds: how to use mastering astronomy (do it before you do your first homework!), math skills, physics fundamentals, and additional tutorials on various astronomical topics. Tutorial are not graded, they are provided for you to learn and refresh your memory; use them as many times as you want. Though it is not required to complete them, it is strongly advisable to work through them. Questions related to a homework may not be answered if you have not attempted first to work through a related tutorial.
In-class tutorials. There will be two 2-hours long **optional** tutorial sessions each week. At the beginning of each session example problems might be solved. During these optional tutorials you can ask any question related to lecture material and how to solve problems. Direct answers on how to solve homeworks will not be provided. First tutorial is on Jan 14th.

In-class response evaluation.

Will be carried out via i>clickers in almost all lectures. In order to get points, you **must** register your i>clicker. Instructions are on e-Class. You should use your CCID for registration, NOT your student ID.

- 2% for participation. To get full 2% for participation, you need to get respond to $\geq 80\%$ of i>click question over the term.
- up to 3% **bonus points** for answering *some* non-polling questions correctly. Usually, you will earn 1 point for a correct answer, 0 for a wrong answer. Some questions will be worth more than one point if answered correctly. Points are accumulated throughout the term. Your percentage will be scaled between the maximum number and the average number of points earned by students in the class.

Reading assignments.

Students will be regularly assigned to read particular sections or chapters of the book that will be followed up by an online reading assignment that should be relatively quick and easy to do if the material is read carefully. It is important to do the reading because some topics may only be covered in the book and not in lectures. The online reading assignments (at http://www.masteringastronomy.com) help provide the instructor with feedback on what students understand and create extra incentive to do the reading. Topics emphasized in lecture are more likely to be emphasized on exams, but keep in mind that students are responsible for all of the assigned reading material. The reading assignment with the lowest grade will be dropped from calculation of the final grade; each assignment will have the same weight despite of the number of points that each homework has.

Tests:

Tests may contain different type of questions including non-multiple choice ones. Tested material will include lectures and textbook chapters assigned for reading.
Students can bring only an allowed electronic calculator. Only Faculty of Engineering **approved, non-programmable, with a Faculty of Engineering gold sticker** calculators are allowed. How to get a gold sticker, see `http://www.engineering.ualberta.ca/en/CurrentStudents/StudentResources/CalculatorSpecs.aspx`
A formula sheet will be provided on the midterm and final exams. Students may bring a single letter-sized paper with content on only one side of the paper (midterm) and on both sides (final only).
All sheets and calculators are checked during the test; any violation may result in a zero for the test (whole or its part), seizure of the paper and test, and the matter may be reported to the Dean for disciplinary action.

Midterm Test Deferral Policy:
A student who cannot write the midterm because of an incapacitating illness, severe domestic affliction, or other compelling reasons may apply to defer the midterm weight to their final exam. Deferral applications must be made to the instructor within 48 hours of the missed test and must be supported by a statutory legal declaration made before a Commissioner of Oaths in the Student Services Office, Faculty of Science, or other appropriate documentation (§23.3(1) of the University Calendar). Deferral of term work is a privilege and not a right, with no guarantee that a deferral will be granted. Misrepresenting facts to gain a deferral is a serious breach of the Code of Student Behavior.

Final exam time and location:
Every student is responsible for confirming the final exam time and location with the University exam schedule: it may change and is not under the instructors control. Rules for the final exam (deferral and similar) are governed by the University policy.

Electronic communication:

This course outline will be archived at http://www.ualberta.ca/~ivanova1/astro122_2013.html. Primary online content (e.g., deadlines, class notes, and important class notifications) will be organized through an eClass (available at https://eclass.srv.ualberta.ca/my/). Students will complete the majority of assignments online at http://www.masteringastronomy.com. The location of all online content is subject to change due to technical issues.
E-mail should be the only electronic communication used if a response on the instructor's part is required. While it is ok to send informal e-mails to family and friends, formal e-mails should be used for communicating in professional circumstances. Therefore, all e-mails for this class should include a formal salutation and signature and should not include Internet slang. E-mail not following this convention will be ignored. The instructor will try to respond to all e-mails within one "business" day. Please include "ASTRO 122" in the subject line to help the instructor quickly identify the message.
As a policy, the instructor does not "friend" or "follow" current students.

Academic Integrity:

If you work together on homework assignments, write up your solutions independently. Direct copying of another's work is plagiarism.
From the University Calendar:
"The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behavior (online at www.ualberta.ca/secretariat/appeals.htm) and avoid any behavior which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offense. Academic dishonesty is a serious offense and can result in suspension or expulsion from the University."
"All forms of dishonesty are unacceptable at the University. Cheating, plagiarism and misrepresentation of facts are serious offenses. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. Any offense will be reported to the Senior Associate Dean of Science who will determine the disciplinary action to be taken."

Cell Phones: To be turned off during lectures and are **not** to be brought to midterm tests or the final exam.

Food: No food is allowed during lectures.

Specialized Support & Students with Disabilities:

Students who require accommodations in this course due to a disability affecting mobility, vision, hearing, learning, mental or physical health are advised to discuss their needs with Specialized Support and Disability Services, 2-800 Students D5 Union Building, 492-3381 (phone) or 492-7269 (TTY).

Academic Support:

University is a very different learning environment from school and it will take some adjusting to it. As adults, students are expected to take more responsibility for their own education. If a student needs additional assistance in developing strategies for better time management, study skills or examination skills, keeping up with the material, or adjusting to university learning, then they need to seek help themselves. Sources of help are: the instructor, Janet Couch (the Physics Undergraduate Advisor, CCIS 4-185), and the Academic Support Center (2-703 Students D5 Union Building).